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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,266	09/16/2003	Charles E. Andraka	SD6398.1/S-103,414	7122
7590 11/02/2005			EXAMINER	
RUSSELL ELLIOTT			AFZALI, SARANG	
Sandia CORP			ART UNIT	
MS 0161			PAPER NUMBER	
P O Box 5800			3729	
Albuquerque, NM 87185			DATE MAILED: 11/02/2005	

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/665,266

Applicant(s)

ANDRAKA ET AL.

Examiner

Sarang Afzali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 10-13 and 16-19 is/are rejected.
- 7) ☐ Claim(s) 14 and 15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 10, 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Nelson et al. (US 4,118,756). Nelson et al. teach a heat pipe wherein a metal felt (stainless steel mesh evaporator wick 24, Fig. 2) is positioned adjacent to a metal substrate (mounting plate 21, Fig. 2), and a porous exoskeleton member (artery wick 25, Fig. 2) is positioned adjacent to the metal felt (wick 24, Fig. 2) whereby the metal felt (wick 24) is between the metal substrate (21) and the porous metal exoskeleton member (wick 25), and a sufficient heat is applied to cause the metal felt (24) to adhere and bond to both the porous metal exoskeleton member (25) and the metal substrate (21) (see Fig. 2, col. 5, lines 7-26).

3. Claims 10, 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Arcella (US 3,857,441).

As applied to claim 10, Arcella teaches a heat pipe wherein a metal felt (wick 14, Fig. 2) is positioned adjacent to a metal substrate (heat pipe 20, Fig. 2) and a porous exoskeleton member (support member 30, Fig. 2) is positioned adjacent to the metal felt (wick 14, Fig. 2) whereby the metal felt (wick 14) is between the metal substrate (20)

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and the porous metal exoskeleton member (30), and a sufficient heat (tack welding) is applied to cause the metal felt (14) to adhere to the porous metal exoskeleton member (30, col. 2, lines 12-14) and the metal substrate (20) [the heating limitation does not preclude additional processing steps, for example press fitting].

As applied to claims 16 and 17, Arcella further teaches that wick (wick 14, Fig. 2) is positioned adjacent to a rigid substrate (heat pipe 20, Fig. 2) and a rigid porous exoskeleton member (support member 30, Fig. 2) is positioned adjacent to the wick (14, Fig. 2) whereby the wick (14) is between the rigid substrate (20) and the rigid porous exoskeleton member (30), and they are all bonded together.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arcella in view of Valyi (US 3,428,126). Arcella teaches the invention cited with the exception of applying a brazing material. However, Valyi teaches a fluid heater wherein a suitable thin layer of brazing metal is applied to one side of a porous metal layer to be bonded to sheet metal layer (col. 2, lines 50-64). It would have been obvious to one of ordinary

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skill in the art at the time of invention to have provided Arcella with a suitable braze material as taught by Valyi to provide an effective means of assembling the heat unit.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arcella in view of Breton et al. (US 3,984,044). Arcella teaches the invention cited with the exception of the step of applying grit blasting. However, Breton et al. teach a mechanical separation apparatus wherein a the surface of the corrugated metal is grit blasted to roughen it sufficiently to promote interatomic bonding, hence enhancing the brazing of the sheet "A" to corrugated stainless steel (col. 17, lines 35-39). It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Arcella with a suitable means of surface preparation as taught by Breton et al. to provide an effective and enhanced brazing process.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arcella and Valyi and further in view of Breton et al. Arcella/Valyi teaches the invention cited with the exception of the step of applying grit blasting. However, Breton et al. teach a mechanical separation apparatus wherein a the surface of the corrugated metal is grit blasted to roughen it sufficiently to promote interatomic bonding, hence enhancing the brazing of the sheet "A" to corrugated stainless steel (col. 17, lines 35-39).). It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Arcella/Valyi with a suitable means of surface preparation as taught by Breton et al. to provide an effective and enhanced brazing process.

8. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arcella in view of Henne et al. (US 6,303,191). Arcella teaches the invention cited with the exception of the single step application of the adhesive. However, Henne et al. teach a production process of a heat pipe wherein in a single step an adhesive (130, Fig. 10) is applied between a wick (50, Fig. 10) and inner side (128, Fig. 10) of layer of a rigid substrate (122, Fig. 10).) for mechanical stability and good heat contact (col. 3, lines 7-10). It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Arcella with a suitable bonding step as taught by Henne et al. to provide an effective and good mechanical stability and heat contact between the heat pipe elements.

Allowable Subject Matter

9. Claims 14 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion


10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarang Afzali whose telephone number is 571-272-8412. The examiner can normally be reached on 7:00-3:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S.A.
10/27/2005


MARC JIMENEZ
PRIMARY EXAMINER
10/28/05